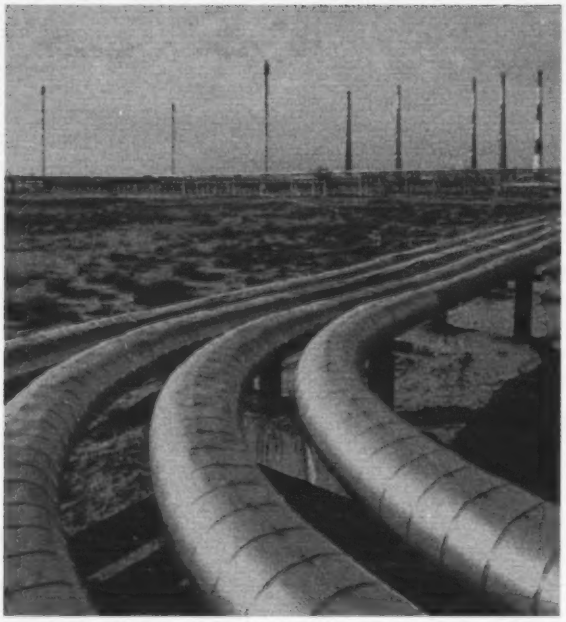
ALBERTA OIL & GAS INDUSTRY QUARTERLY UPDATE



FALL 2016

Reporting on the period: June 16, 2016 to October 18, 2016

All about oil and gas

WHILE ALBERTA'S petroleum sector has felt the negative impact of low crude oil prices and a persistently weak natural gas market, the province's oil and gas industry is poised to rebound once commodity prices improve to sustainable levels.

In fact, technological advancement has set the stage for future growth in Alberta's non-oil sands oil and natural gas industry. Until the turn of the last decade, the sun had slowly been setting on Alberta's conventional oil and natural gas industry. Oil production had declined from a peak of 1.43 million barrels per day (bbls/d) in 1973 to a low of around 460,000 bbls/d in 2010.

But things, low commodity prices notwithstanding, have changed for the better, as increased implementation of long horizontal wells and multistage fracturing in tight oil plays across the province—not to mention attractive provincial royalty incentives to encourage drilling—have allowed industry to extract crude from resource bases that had previously been essentially untapped.

In fact, the tight oil revolution that began in the U.S. gradually moved north into Alberta, marking the dawning of a new day for oil and natural gas exploration and production in the province.

In Alberta, the technology is being used in an increasing number of oil plays. Among the most advanced plays are the Cardium in west-central Alberta, the Beaverhill Lake Carbonates near Swan Hills and the Viking in east-central Alberta.

More importantly, emerging liquids-rich plays like the Montney and Duvernay shale show great promise. In fact, the Duvernay play may have the most potential going forward.

Although drilling activity has slowed given the current commodity price environment, many producers are still reporting strong results and liquids yields from their Duvernay and Montney programs.

The Duvernay is often compared to the prolific Eagle Ford of Texas because they are both shale plays that offer a full spectrum, from dry gas through liquids-rich gas to oil. Many other shale plays, such as the Horn River Basin in B.C. and the Marcellus or Barnett south of the border, are much more gas-focused.

In terms of the potential size of the play area, the richness of the source rock and even some of the early production results, the Duvernay "is well on its way to being as big or bigger than the Eagle Ford," Canadian Discovery has proclaimed.

The increase in horizontal drilling activity is expected to offset the steep decline in Alberta conventional production that would otherwise be expected.

The Alberta Energy Regulator (AER) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.8 billion barrels, representing more than one-third of Canada's remaining conventional reserves. This increase of 1.6 per cent over the 2013 estimate is from all reserve adjustments less production in 2014.

According to the AER, in 2015 Alberta produced 68 per cent of Canada's natural gas and 80 per cent of Canada's oil and equivalent. More than 60 per cent of Canada's total oil and equivalent production was marketable bitumen.

Shale gas production in Alberta continued to increase in Alberta in 2015, growing by 32.1 per cent to 5.9 million cubic metres per day (208 mmcf per day) from 4.5 million cubic metres per day (159 mmcf per day) in 2014.

In 2016, shale production is forecast to grow by another 25.4 per cent to 7.4 million cubic metres per day, reaching 12.3 million cubic metres per day by 2025. The number of shale wells expected to be placed on production in the period is expected to increase to 215 by 2025 from 135 in 2016.

Overall marketable natural gas production in Alberta, which includes shale gas, increased for the second year in a row in 2015, growing by 2.2 per cent to 298.6 million cubic metres per day from 292.1 million cubic metres, due to the lag effect from high drilling levels in 2014.

At the end of 2015, the province had 31.3 trillion cubic feet (tcf) remaining established reserves of natural gas with ultimate potential (recoverable) of 223 tcf (excluding unconventional gas). The province has 1.8 billion barrels of remaining established reserves of crude oil, with ultimate potential (recoverable) of 19.7 billion barrels. ■

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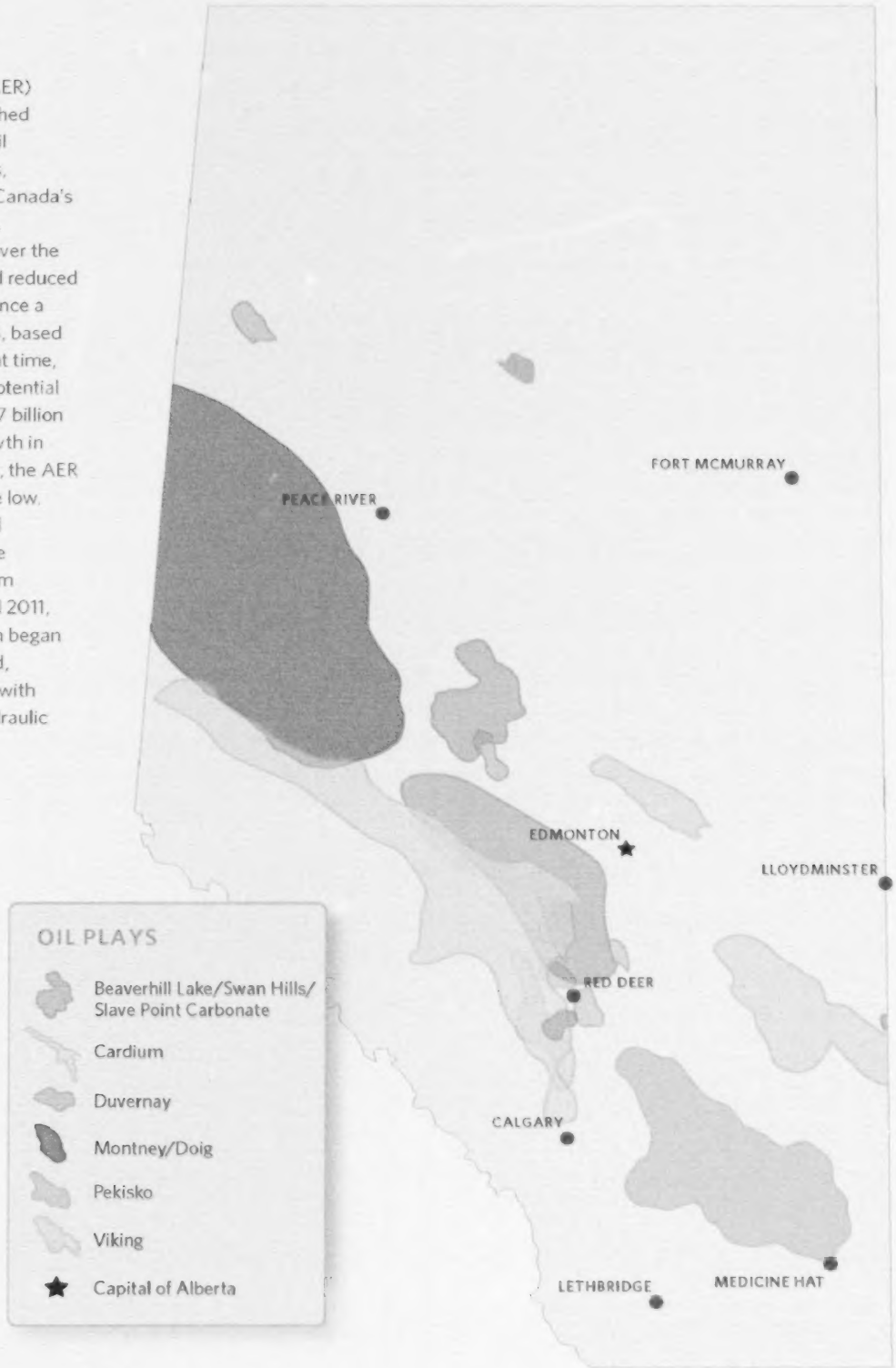
NOTE: This publication contains information about Alberta's oil and gas industry, excluding the oil sands. For information on the oil sands, please refer to the *Alberta Oil Sands Industry Quarterly Update* on this website.

OIL PLAYS

The Alberta Energy Regulator (AER) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.8 billion barrels, representing about one-third of Canada's remaining conventional reserves.

Though the pace has slowed over the past year due to low oil prices and reduced activity, it's expected to resume once a market correction occurs. In 1994, based on the geological prospects at that time, the AER estimated the ultimate potential of conventional crude oil to be 19.7 billion barrels. Given recent reserve growth in low permeability, or tight oil plays, the AER believes that this estimate may be low.

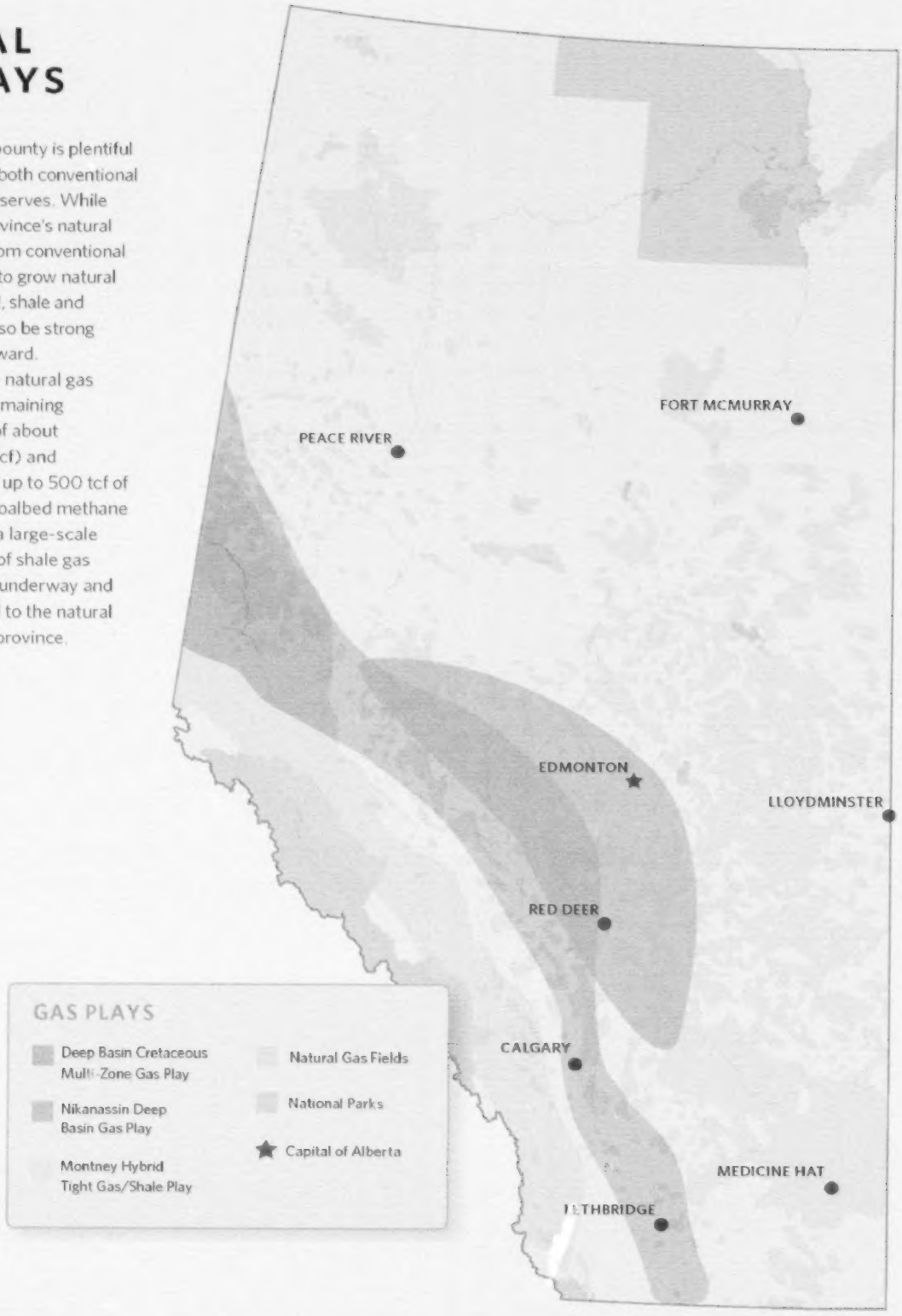
Starting in 2010, total crude oil production in Alberta reversed the downward trend that was the norm since the early 1970s. In 2010 and 2011, light-medium crude oil production began to increase as a result of increased, mainly horizontal, drilling activity with the introduction of multistage hydraulic fracturing technology.



NATURAL GAS PLAYS

Alberta's natural gas bounty is plentiful and is produced from both conventional and unconventional reserves. While the majority of the province's natural gas is still produced from conventional sources, the potential to grow natural gas volumes from coal, shale and tight formations will also be strong contributors going forward.

Alberta has a large natural gas resource base, with remaining established reserves of about 33 trillion cubic feet (tcf) and estimated potential of up to 500 tcf of natural gas from the coalbed methane resource. In addition, a large-scale resource assessment of shale gas potential in Alberta is underway and could significantly add to the natural gas prospects for the province.



GOVERNMENT UPDATE

Alberta Government

ALBERTA WILL NOT BE SUPPORTING FEDERAL CARBON PROPOSAL 'ABSENT SERIOUS CONCURRENT PROGRESS ON ENERGY INFRASTRUCTURE'

In principle, the Government of Alberta supports a common price that all provinces and territories meet in their climate change plans, Premier Rachel Notley announced October 3.

"That ensures that we are all making the same effort, and it ensures that no one is penalized economically," she noted in a statement. "All revenues derived from Alberta's climate change plan will remain in the province."

Prime Minister Justin Trudeau says the proposed federal price on carbon pollution should start at a minimum of $10 per tonne in 2018, rising by $10 each year to $50 per tonne by 2022.

"With regard to the federal government's proposals today, Alberta will not be supporting this proposal absent serious concurrent progress on energy infrastructure, to ensure we have the economic means to fund these policies," the premier added. "It is time for the Government of Canada to act on this issue.

"Albertans have contributed very generously for many years to national initiatives designed to help other regions address economic challenges. What we are asking for now is that our landlock be broken, in one direction or another, so that we can get back on our feet."

Notley was reacting to the federal government's proposed pan-Canadian approach to pricing carbon pollution. Under the new plan, all Canadian jurisdictions will have carbon pricing in place by 2018.

In order to accomplish this, Canada will set a benchmark for pricing carbon emissions—set at a level that will help Canada meet its greenhouse gas emission targets, while providing greater certainty and predictability to Canadian businesses.

Provinces and territories will have flexibility in deciding how they implement carbon pricing: they can put a direct price on carbon pollution or they can adopt a cap-and-trade system.

ALBERTA LOOKS TO TAKE THE LEAD ON CLEAN ENERGY AND TECHNOLOGY

As part of Alberta's Climate Leadership Plan, the provincial government announced in mid-September that it would make historic investments in research and innovation that will reduce emissions. To help guide these investments, the government has appointed an independent task force to engage with Albertans.

"Alberta, along with every jurisdiction in the world, is in a race for technology and innovation. Our advantage as an energy leader, and the government's action on the Climate Leadership Plan, means that we are uniquely positioned to lead on clean energy and technology—creating jobs and a more resilient, diversified economy for generations. This task force will help us do just that," says Deron Bilous, Minister of Economic Development and Trade.

Shannon Phillips, Minister of Environment and Parks and Minister Responsible for the Climate Change Office, adds that innovation and technology are "key to achieving" Alberta's climate leadership goals.

"These engagements will help guide and drive the research and innovation we need to reduce greenhouse gas emissions and promote healthy communities for future generations," she says.

The Climate Technology Task Force consists of a chair and four members with significant experience and knowledge in research, development and deployment of climate change-related technology:

- Gordon Lambert, chair
- Vic Adamowicz
- Shelly Vermillion
- Suzanne West
- Sara Hastings-Simon

As chair, Lambert brings his learnings and experience as part of Alberta's Climate Change Advisory Panel, and board member of Alberta Innovates. His participation in the task force will help ensure Alberta's research and innovation system as a whole is taken into consideration.

"I look forward to bringing together world class input through engaging with research and innovation leaders and to discuss how we can focus our investments to meet the province's climate change aspirations," he says.

CARING FOR THE CARIBOU

On October 1, 2016, the Alberta government announced that it will work with the oil and gas industry over the next five years to restore 10,000 linear kilometres of land that had been cleared for seismic lines in the Little Smoky and A La Peche caribou rangelands.

In keeping with the recommendations of the Denhoff Report released in June, these efforts not only restore critical caribou habitat, but will also create local jobs as thousands of trees will be planted over the next five years.

"We are committed to creating jobs in our communities. That's why we are moving forward on restoration efforts that encourage the recovery of Alberta's caribou population, while also providing jobs and strengthening the local economy," says Oneil Carlier, Minister of Agriculture and Forestry. ➤

GOVERNMENT UPDATE CONTINUED

As part of the draft range plan, the oil and gas industry has agreed to work with government to fund these restoration efforts. Initial efforts include:

- a $500,000 grant to the Forest Resource Improvement Association of Alberta, which has awarded a contract to Woodlands North in Whitecourt to build a restoration guide for conducting and evaluating restoration treatments and establishing a restoration pilot of 70 kilometres of legacy seismic lines this spring;
- a contract worth $200,000 that will be issued to source and grow seed to complete the pilot and get a start on growing trees needed this coming year; and
- a contract worth $800,000 to develop an operational plan for restoring 3,900 kilometres of legacy seismic lines in the Little Smoky and A La Peche caribou ranges.

"We are pleased with the leadership role taken by the oil and gas industry in working to ensure we have a made-in-Alberta plan that provides economic certainty for industries and workers who make their living in the north and do what's right to protect this iconic animal," says Shannon Phillips, Minister of Environment and Parks.

ALBERTA, MEXICO LOOK TO STRENGTHEN ENERGY-RELATED TIES

In early October, Alberta's energy minister signed a new agreement with Mexico's federal government that will strengthen relations with an important trading partner and better enable the sharing of best practices.

Energy Minister Margaret McCuaig-Boyd travelled to Mexico City from September 29 to October 3, 2016. While there, she promoted Alberta companies and new opportunities for investment, and met with businesses and the Mexican government on a variety of energy-related policies. Minister McCuaig-Boyd was also the guest of honour at a renewable energy event in Mexico City.

MInister McCuaig-Boyd's visit set the stage for the Mexico Midstream Trade Mission that took place October 4 to 5, 2016, where more than 20 Alberta midstream energy companies met with Mexican officials and businesses to discuss opportunities in the development of energy infrastructure across North America.

"Our government is committed to opening new markets for Alberta resources and our companies. Albertans have extensive experience in responsible and sustainable energy development and I will advocate for our companies looking to expand to the south," Minister McCuaig-Boyd said.

The trip included the signing of a Memorandum of Understanding between the Government of Alberta and the Mexican Secretariat of Energy, which will formalize the growing relationship with Mexico and enable sharing best practices on:

- energy policies, including greenhouse gas and methane emissions reductions;
- electricity and renewable power;
- developing heavy oil and unconventional resources; and
- increasing valued-added developments and energy-related trade and investments between Alberta and Mexico.

THREE NEW MEMBERS APPOINTED TO ALBERTA ENERGY REGULATOR BOARD

The Alberta government has appointed three new members to the board of directors of the Alberta Energy Regulator (AER).

The appointments of Monica Norminton, Stan Boutin and Jack Royal are effective October 1, 2016, and expire September 30, 2017.

Monica Norminton serves as the chief financial officer and general counsel for a private family trust. Prior to her current role, she held various positions, including chief financial officer and vice-president, technology for the Edmonton Regional Airports Authority. In addition, Norminton held positions as chief executive officer and president of Alberta Pension Services as well as assistant deputy minister of Alberta Environment's corporate services, chief administration officer for the office of the Auditor General of Alberta, as well as several other senior roles in both government and the private sector.

Stan Boutin, also an Edmonton resident, is a professor and Alberta biodiversity conservation chair in the department of biological sciences at the University of Alberta. Additionally, he serves as the science co-director of the Alberta Biodiversity Monitoring Institute.

He is a nationally and internationally recognized scientist and in 2009, was awarded the Misoslav Romanowski Medal from the Royal Society of Canada, which is awarded for significant contributions to the resolution of scientific aspects of environmental problems and for important improvements to the quality of an ecosystems brought about by scientific means.

Jack Royal, a Strathmore resident, has been the president and general manager of the Blackfoot Crossing Historical Park—the historic site of the signing of Treaty No. 7 in Alberta—since 2005. Prior to this, he spent a number of years in various administrative roles with the Siksika Nation.

Royal is the current chair of the Indian Business Corporation and a member of the Treaty 7 Technical Implementation Commission. In 2012, he received the Aboriginal Role Models of Alberta Award for economic development. ■

WHAT'S NEW IN THE OIL & GAS INDUSTRY

SLOW GROWTH PREDICTED FOR CANADIAN CONVENTIONAL OIL AND GAS: CERI STUDY

Significant reductions in production costs would be needed for an expansion of natural gas and conventional oil activity in Canada over the next 20 years, says a new study from the Canadian Energy Research Institute (CERI).

The period will be characterized by slow growth at best for both non-oil sands (including offshore) oil and natural gas production according to the study, *Canadian Crude Oil and Natural Gas Production and Supply Costs Outlook (2016-2036)*.

While production costs for new wells are in some cases below the market price for both commodities, the majority of reference wells are not economic, the study finds.

The natural gas forecast has two major uncertainties: the timing and size of proposed LNG plants in B.C., and the use of gas for electricity generation in Alberta.

If LNG plants do not proceed, there could be a loss of five bcf/d of production while in Alberta. While gas demand is likely to increase to replace coal, it is uncertain when that additional demand would occur and by how much, CERI says.

The vast majority of natural gas production will continue to come out of B.C. and Alberta. Both provinces will see declining natural gas production from 2016 through 2018 while the market adjusts to the reduced drilling in response to the current low prices.

The study is forecasting a rise in production leading to LNG projects with CERI predicting the first will begin operations in 2022.

Once production has risen to accommodate the increase in demand that the LNG projects will cause, production remains fairly stable with marginal increases through the remainder of the study period, averaging just over 20 bcf/d by 2036 from 17.6 bcf/d in 2014.

Price is the major uncertainty in the case of the oil market with higher prices putting upward pressure on the forecast, says the study. The second uncertainty is market access, with proposed new oil pipelines providing access to higher priced global markets and reducing the western Canadian discount resulting from the current limited access.

In Alberta, CERI is forecasting that oil well licensing and drilling activity will steadily increase to approximately 1,300 wells per year in 2036 from under 400 per year in 2016.

However, due to a combination of well decline rates and the drilling slowdowns in 2015 and the first half of 2016, production is forecast to decline until 2027 when it will slowly begin to rise, averaging roughly 700,000 bbls/d in 2036.

ALBERTA OIL AND GAS OPERATORS TO BE ASSESSED ON PERFORMANCE

Alberta's energy regulator needs to step up and publicly state what it expects the oil and gas industry to deliver and how it is performing, says its chief executive officer.

"What you are going to find—and I deal with regulators all across the world—is that this is one of the heaviest regulated jurisdictions—if not the heaviest—in the world and we are not getting any credit for it because we are not telling people about it," Jim Ellis, president and chief executive officer of the Alberta Energy Regulator (AER) said September 7.

He also told delegates attending the World Heavy Oil Congress in Calgary that he wants to see a discussion of industry performance compared to jurisdictions beyond Alberta. "The key thing for this industry performance reporting is that we are looking for a common baseline standard around the world, specifically across Canada and in North America," he said.

"We want to bring this to the fore as regulators and start having a dialogue about the true performance of operations in Alberta," said Ellis. "We just don't know the true data and the true performance standards of other jurisdictions in North America and around the world, and we are going to start moving in that zone."

"We have been all shooting in the dark for way too long with too many people commenting on industry [and] the lack of performance," he said in response to a question following his presentation. "You are going to find...there is a very significant positive element in there that people need to hear."

Late this fall or early next year, the AER plans to release performance data on provincially regulated pipelines that will include the names of operators. "It's our attempt to move forward and be more transparent with the real data and let Albertans have a full understanding of what's going on," he later told reporters.

Ellis also expects there will be keen interest from industry in the results. "Peer pressure in the industry world, like in the regulatory, has a significant role," he noted. ➤

WHAT'S NEW IN THE OIL & GAS INDUSTRY CONTINUED

PSAC 'REJIGS' ORPHAN WELL PROPOSAL

The Petroleum Services Association of Canada (PSAC), eager to see laid-off workers back in the field, is trying a different tack to obtain government funding, and this time it is getting a warm response.

PSAC has written letters to the Province of Alberta and to the federal government, seeking not a handout, but a no- or low-interest, long-term loan to be paid to the Orphan Well Association (OWA), which would use the funding to decommission Alberta's inactive wells and stimulate activity.

"They're open to that, it's just a matter of going through all the right processes to make it happen," says Mark Salkeld, PSAC president and chief executve officer.

Last March, PSAC asked the federal government for $500 million to decommission wells in Alberta, saying the resulting work would simultaneously boost the industry and help the environment.

That funding would put oil and gas service companies back to work, create jobs, retain expertise and skills, and provide economic and environmental benefits in a win-win for all stakeholders, said Salkeld at the time.

He suggested the loan could be repaid with half a per cent to one and a half per cent interest, "just so that the government's not giving away the money, that they're going to get it back so that the Alberta taxpayers are not on the hook."

PSAC's proposal stressed that "when you put people back to work, there's personal tax that gets paid, there's fuel tax for all our equipment that's on the road again and then there's corporate tax. I think we calculated the government could see returns of 35 per cent right off the bat, and that's not even including interest on a loan," Salkeld said.

He suggested the loan's terms would be set up between the Alberta government and the producers or the OWA, possibly through royalties.

PENN WEST INCREASES ALBERTA SPENDING PLANS

Back on a sound financial footing due to debt reduction through asset sales, Calgary-based Penn West Petroleum has resumed drilling in the Cardium and Viking plays in Alberta.

This year Penn West closed several asset sales for total proceeds of $1.3 billion, allowing the company to dramatically lighten the debt load it had been carrying since before the current board and management were appointed more than three years ago.

In releasing its second-quarter results, the company announced it has increased its 2016 capital budget by $55 million to $105 million, which includes $15 million for decommissioning expenditures.

During the rest of this year Penn West plans to drill five wells in the Cardium, 11 wells in the Alberta Viking and 19 (gross) wells in its Peace River oil sands joint venture area.

The company expects its second-half drilling program to add about 3,000 boe/d to its 2016 exit production. It says 2016 capital spending will be fully funded by funds flow from operations.

ASSOCIATIONS EXTEND HELPING HAND TO UNEMPLOYED

Several energy industry associations now have a separate membership category for people out of work as a result of the current downturn, offering them discounts and in some cases waived fees.

"We recognized that we have members that want to stay current on technological innovation, want to keep networked with their companies and their friends and yet are not currently employed," says Dan Allan, president of the Canadian Society for Unconventional Resources (CSUR).

"I think it's important that any technical professional stays networked," he says. "It's critical, and it's not about LinkedIn. LinkedIn is great, but you need to be face-to-face and keep current on who's doing what."

One of the things associations can do to assist the unemployed is to significantly reduce dues, and allow them to attend a lot of events for free, he says.

For example, CSUR's dues for contractors are usually $650 per year, but are now $99 for 18 months for a professional in transition, while fees for many events have been waived.

CSUR is trying to find ways to track the number of professionals who have lost work in the past two years, and estimates 30,000 or more energy professionals in Alberta have been laid off. ■

TECHNOLOGY UPDATE

NEW TECHNOLOGY BOOSTS ALBERTA-BASED COMPANY'S OUTLOOK

Calgary-based Production Plus Energy Services is in growth mode, coming off a very successful year of launching its patent-pending HEAL System to North American producers.

Production Plus's success is largely attributed to an increasing demand for the HEAL System from producers due to its ability to increase production, lower operating costs and minimize production risk in horizontal wells.

"Given current market conditions, demand for the HEAL System is strong and we've installed in over 100 horizontal wells, including more than 20 types of reservoirs across Canada and the U.S.," says Jeff Saponja, chief executive officer of Production Plus. He adds that this solution can offer producers more production at lower risk and at highly attractive capital efficiencies. The HEAL System is proven to reliably provide a 30–100 per cent low-risk increase in production, the company states.

Horizontal wells are known to have production challenges as a result of inconsistent and variable fluid flow, damaging solids and excessive downhole pump gas interference. Production through the lifecycle of these wells often requires complex and expensive artificial lift strategies.

The HEAL System offers a proven solution for simplifying and lowering production costs, providing a foundation for efficient artificial lift in horizontal wells. With no moving parts, the HEAL System easily joins to the horizontal as part of a standard well completion and is designed to perform for the life of the well.

"Our longer-term results demonstrate the effectiveness of the HEAL System and that it can add substantial long-term value to a well," says Saponja. "One of our initial installs is still running after two years without a workover or any production downtime related to the artificial lift system. In the two years prior to the HEAL System installation, this well had nine workovers."

DIGITAL OILFIELD TECHNOLGIES PROVING THEIR WORTH

Two years into the oil price collapse, and closer to a decade into the natural gas slide, few prognosticators are forecasting a return to the lofty price highs of the mid-2000s for either commodity anytime soon.

In the absence of higher prices, oil and gas companies have little choice but to lower costs to remain profitable. And one increasingly recognized way to do that is to adopt digital oilfield technologies.

According to a JWN survey, conducted in partnership with Siemens, Storm Telematics and GDM Pipelines, attitudes toward digital oilfield technologies have grown more favourable over the past year, with more of those in the oil and gas industry perceiving the technology as both beneficial and ready for implementation.

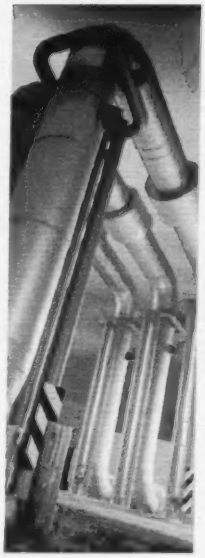
Overall, among executives to front-line workers, in exploration and production and in service and supply companies, awareness and knowledge about the various digital oilfield technologies has improved. The survey of 355 respondents also found that feelings about the overall benefits of the digital oilfield remained high.

To download your complimentary copy of the 2016 *Digital Oilfield Outlook Report*, please click here.

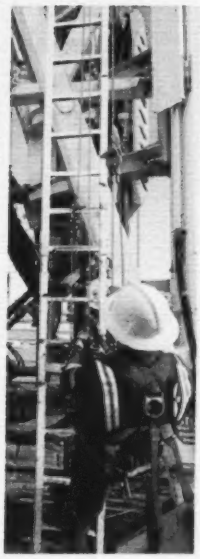
With an emphasis on fleet management and field productivity solutions, the report provides recommendations that could accelerate technology adoption and enhance the competitiveness of the oil and gas industry.

Digitizing the oilfield can mean many different things, from automation and remote inspection to biometric monitoring and predictive maintenance. They generally entail the digitization of activities and processes or the application of what has become known as the Internet of Things—connected or "smart" sensors relaying information to a central database where advanced analytics can be applied to produce actionable intelligence that results in better decisions and cost savings.

Some technologies are closer to commercialization than others. Fleet management and field productivity, the main focus of the latest *Digital Oilfield Outlook Report*, were considered the most mature digital oilfield technologies among 10 use cases surveyed in the inaugural *Digital Oilfield Outlook Report*, published in 2015 (available here: http://www2.jwnenergy.com/DOF1). ■



LABOUR UPDATE



NEW DRILLING JOBS EXPECTED TO RESULT FROM NEW PROGRAM

Drilling investment and jobs will increase in Alberta through the rest of 2016 now that drilling has started on the first wells under the Modernized Royalty Framework.

Government has received dozens of drilling applications since companies were allowed to apply for early access to the new framework. Thirty-five new wells had been been approved as of August 15. The Canadian Association of Oilwell Drilling Contractors estimates that each drilling rig in operation creates roughly 135 direct and indirect jobs.

Encana is the first company to have its wells approved after demonstrating increased drilling activity beyond what was anticipated for 2016. Those new wells began operation in the Duvernay-Montney basin near Grande Prairie.

This increased activity is a direct result of government's decision to allow the early adoption of the Modernized Royalty Framework for wells that otherwise would not have been drilled this year.

"Our new royalty framework is good news for all Albertans. It's putting more rigs out in the field, creating jobs and increasing revenue for our province. We are pleased to see so many applications to drill come in and are encouraged that companies want to accelerate their capital investments—this is exactly what a modern, competitive and responsible royalty framework should do," says Margaret McCuaig-Boyd, Minister of Energy.

Richard Dunn, Encana's Vice-President of Government Relations, says the modernized royalty framework provides certainty and clarity for the industry.

"As a result of the government's flexibility in allowing for early opt-in to the modernized framework, we have added to our development plans in Alberta this year, a time when investment in our industry is exceptionally important to local economies," Dunn says.

The Modernized Royalty Framework will go into effect January 1, 2017.

UNEMPLOYMENT RATE EXPECTED TO REMAIN ELEVATED

According to the Government of Alberta's first-quarter fiscal update released August 23, employment in 2016 is expected to fall by 1.7 per cent, in line with the budget forecast.

Over the last 12 months, the impact of the employment reductions have been most pronounced in the goods-producing sector, where employment has fallen by a total of 82,300 jobs since July 2015. These losses were partially offset by gains in the services-producing sector, which grew by 33,200 jobs since July 2015. A slightly larger lift in employment of 1.2 per cent in 2017 is now forecast due to reconstruction efforts.

After averaging 7.6 per cent in the first six months of 2016, Alberta's unemployment rate was 8.5 per cent in September. The unemployment rate is expected to remain elevated over the last half of 2016 and average eight per cent for the year.

JOB GRANT HELPS EMPLOYERS GET BETTER TRAINED WORKERS

Employers are seeing the benefits of the Canada-Alberta Job Grant (CAJG) that is helping businesses gain and retain workers with the right skills.

Launched in October 2014, the CAJG responds to Alberta's labour challenges by helping employers build a skilled workforce to meet current and future needs. The program is delivered by the provincial government with joint funding from the Government of Canada and employers.

"Investing in training and continuous learning leads to more career opportunities and greater chances at career advancement. The [CAJG] is one way we are supporting employers to make training decisions that are best for their business," says Christina Gray, Alberta Minister of Labour.

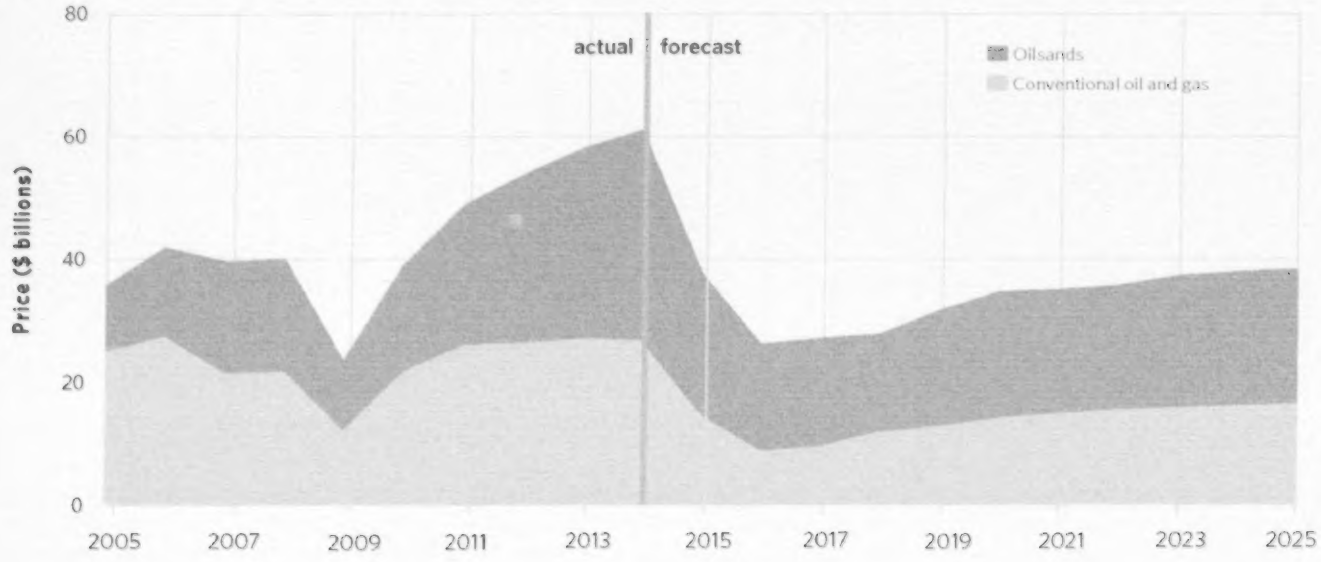
As of June 2016, more than $29 million had been approved for training. More than 5,700 applications have been approved for more than 2,400 unique employers in Alberta.

More than 11,000 training courses have been approved for a variety of training programs such as project management, risk management, health and safety courses, leadership skills and driver training.

The program lets employers decide who gets trained and what type of training their current or prospective employee should receive. For employers who are training potential workers, it's expected the individual will be hired upon completion of training. ■

OIL & GAS STATISTICS

INVESTMENT IN ALBERTA OIL AND GAS SECTOR

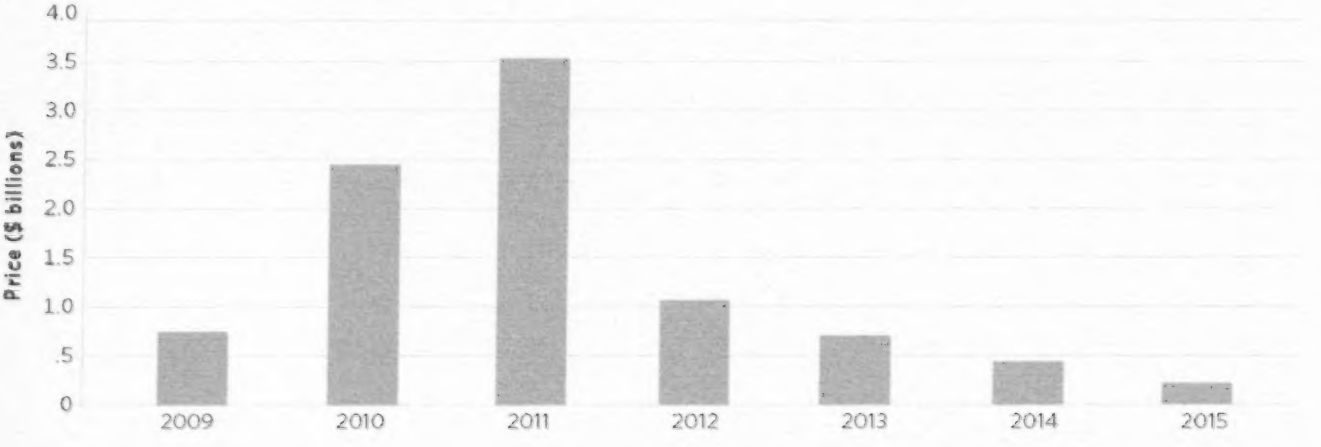


Historical values sourced from the Canadian Association of Petroleum Producers.

Source: IHS

ALBERTA CROWN LAND SALES

Petroleum and natural gas rights, excluding oil sands



Source: Alberta Energy Regulator

STATISTICS CONTINUED

DRILLING RIG COUNT BY PROVINCE/TERRITORY

October 18, 2016

	ACTIVE	DOWN	TOTAL	ACTIVE
Western Canada				(Per cent of total)
Alberta	119	334	453	26
Saskatchewan	22	104	126	17
British Columbia	15	59	74	20
Manitoba	1	8	9	11
WC total	**157**	**505**	**662**	**24**

Source: IWN

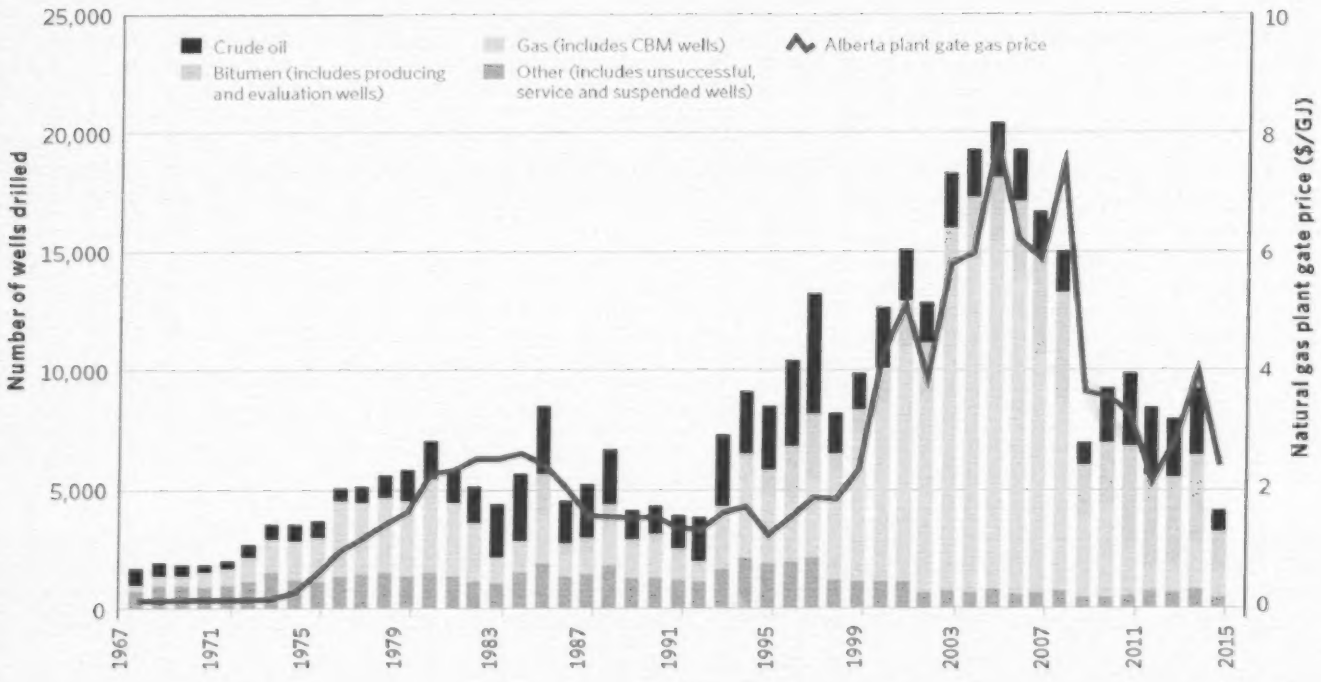
OIL AND GAS WELL COMPLETIONS BY PROVINCE

September 2016

	OIL WELLS		GAS WELLS	
Western Canada	**SEP '15**	**SEP'16**	**SEP'15**	**SEP '16**
Alberta	154	64	65	47
British Columbia	2	3	25	47
Manitoba	27	4	0	0
Saskatchewan	124	119	0	0
Total	**307**	**190**	**90**	**94**

Source: IWN

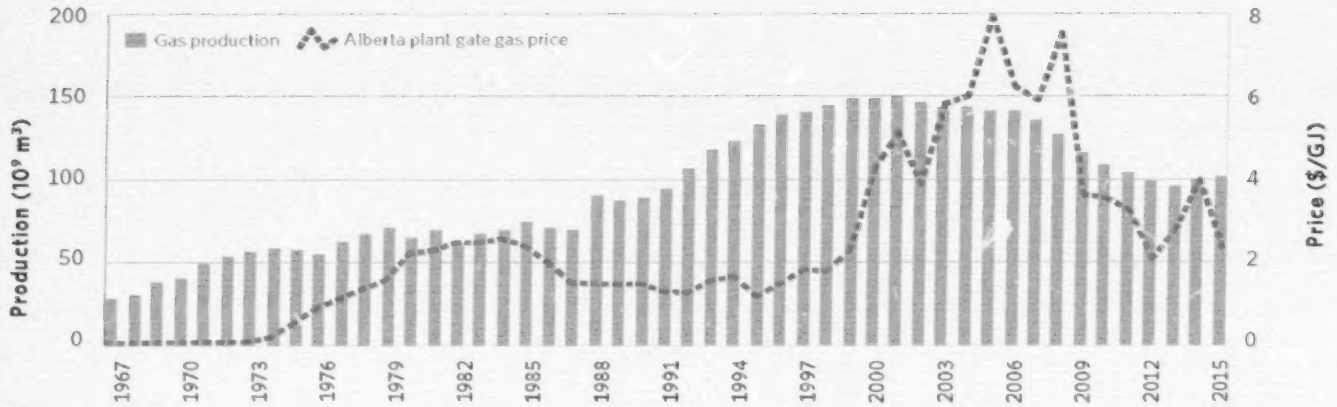
DRILLING ACTIVITY IN ALBERTA, 1967-2015



Source: Alberta Energy Regulator

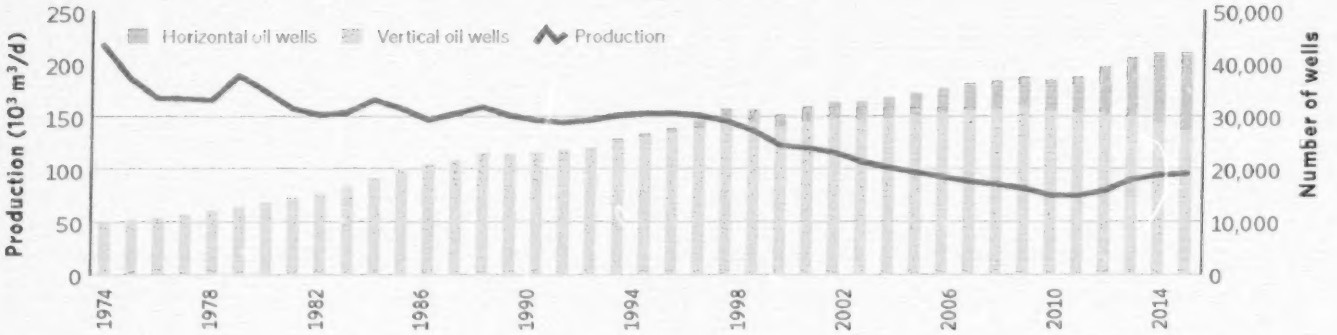
STATISTICS CONTINUED

ALBERTA MARKETABLE GAS PRODUCTION



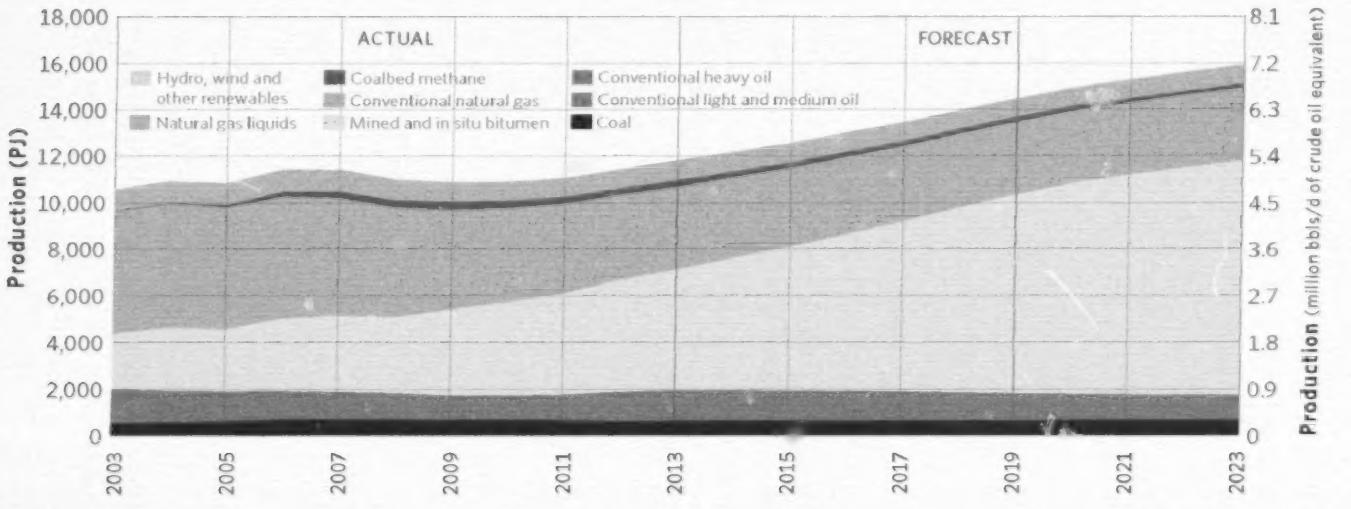
Source: Alberta Energy Regulator

ALBERTA CRUDE OIL PRODUCTION AND PRODUCING WELLS



Source: Alberta Energy Regulator

TOTAL PRIMARY ENERGY PRODUCTION IN ALBERTA



Source: Alberta Energy Regulator

THE **ENVIRONMENTAL** FILE

FEDERAL GOVERNMENT ADVISED TO BUILD ON PROVINCIAL INITIATIVES IN FORGING NATIONAL CLIMATE PLAN

As policymakers prepare to negotiate a pan-Canadian climate plan, the federal government must build on the best provincial policies and implement them nationwide, including a national carbon pricing strategy, says a newly released report led by the Pembina Institute.

"Ours is an optimistic message, because we do think it is possible to get on track," says Erin Flanagan, program director of federal policy at the institute. "However, ours is also an urgent message, because we have wasted a lot of time as a country. We think now that the prime minister is engaged and premiers across the country are engaged, this is really the time to bring in a credible plan."

She adds: "Expectations are high, and we hope that [policymakers] will demonstrate that Canada can get back on track through a pan-Canadian plan by the end of the year."

Flanagan says the report, which was released in late September, is in part aimed at the Canadian Council of Ministers of the Environment to stress the fact there is still lots of work required in order for Canada to demonstrate it can meet its climate targets.

"The recommendations are for the first ministers as well, who will be bringing in the pan-Canadian plan hopefully before the end of the year."

According to the report, without strong national consensus on how to reduce emissions, the federal government must demonstrate a coherent plan to meet or exceed its 2030 target, either through additional federal actions or a combination of federal, provincial, territorial, municipal and aboriginal commitments. Existing policies implemented nationally could help in this effort.

For example, Alberta's commitment to reduce methane emissions from the oil and gas sector by 45 per cent, along with B.C.'s similar commitment, should encourage the federal government to move forward with a backstop regulation, Flanagan says, noting that when the Prime Minister Justin Trudeau met with U.S. President Barack Obama and Mexican President Enrique Peña Nieto in Ottawa in June, they committed to taking that target national.

"We think that is a great case study for what should happen in other sectors."

WITH ENVIRONMENTAL CONCERNS INCREASING, BEST PRACTICES FOR UPSTREAM PIPELINES VITAL

The Canadian Energy Pipeline Association (CEPA) is working with provincial regulators to encourage best practices in upstream pipelines as well as in major transmission pipelines, says the head of the association.

"If somebody has a problem, we all have a problem," Chris Bloomer, CEPA president and chief executive officer, said in an executive panel discussion at the International Pipeline Conference and Expostion in Calgary in September.

In a later interview, he noted that even though his group does not represent producer pipelines, it got "tons of phone calls" following the recent Husky Energy crude oil pipeline spill into the North Saskatchewan River in Saskatchewan.

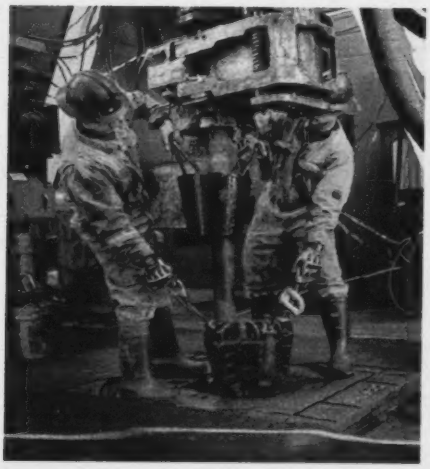
"We are trying to foster as much collaboration as we can and to transfer what we are doing," he said. "What fits for major transmission pipelines may not fit for all systems, but there are elements and philosophies and processes that to some degree can be applied everywhere."

CEPA is working with provincial regulators in Alberta, Saskatchewan and B.C. as well as with the public on performance measures, using its own Integrity First program as an example, but it's a broad conversation and "it's not going to happen overnight."

"We are working to influence that conversation," said Bloomer. "It may be challenging, but the problem is if we are not all on the same page, that leads to misunderstandings and not transferring best practices."

In the next few months, the Alberta Energy Regulator will be issuing a report card, evaluating the performance of upstream companies and that will provide some differentiation, he said. ■

FOCUS ON THE **DUVERNAY**



PHOTOS COURTESY ENCANA (TOP) AND SHELL

ENCANA PLEASED WITH DUVERNAY DRILLING RESULTS

Encana's drilling results in Alberta's Duvernay play continue to be encouraging.

The company is focusing on the Simonette region in the northwest part of the play. David Hill, executive vice-president of exploration and business development, says the average 180-day initial production rates are 925 boe/d.

"We currently have 60 per cent of the top 40 producing wells in the Duvernay," he says, adding that some wells have liquids yields of up to 250 barrels of condensate per mmcf of gas.

Encana now has 1,000 gross future well locations at Simonette with more than 500 locations deemed "premium," Hill says.

The company divides its Simonette area into two regions—Simonette North, which is the lowest-cost region in the core with some of the highest returns, and Simonette South, where the wells are deeper, higher pressure and more productive.

Industry as a whole has drilled 450 Duvernay wells drilled since 2011, adds Jim Roberts, Encana's vice-president and general manager of northern operations.

"As it stands today, we've grown net production a little under 20,000 boe/d with roughly half of that condensate," Roberts says.

He adds, "We're running four rigs this year and growing our high-margin production volumes."

SHELL CANADA CONTINUES TO PROVE UP DUVERNAY ACREAGE

Shell Canada's deep basin manager says the potential size of the Duvernay play for the company is large.

"The Kaybob Duvernay has the potential of up to a 100,000 boe [per day]," says Murray Elliott. "Obviously, we haven't de-risked all of the blocks that would get us to that, but it has that sort of potential on Shell lands." He estimates Duvernay wells generate about 70 per cent of their production in the first two years of life.

Shell's technical manager for the Duvernay estimates the formation's wells, which are most productive in their first two years, generate about two-thirds of their production as liquids.

"We may move a little bit around that number, but we expect that proportion will stay similar," says Jeremy Moore. "As we learn about completions and extending our well lengths, the wells will become more prolific."

Moore says Shell is drilling longer wells in the Duvernay, averaging about 2,300 metres each. That strategy allows the company to drill more wells from the same pad. "We've had up to seven wells on one pad in the Duvernay, and that's what we'd like to continue with," he says.

Adds Elliot: "In the Duvernay [play], we have multiple options for gas [processing], and we have contracts in place for everything we need for the next eight years."

MURPHY OIL ANNOUNCES DUVERNAY DRILLING PLANS

U.S.-based Murphy Oil plans to spend approximately $50 million on drilling, completing and infrastructure in its joint-venture program in the Kaybob Duvernay and Placid Montney for the remainder of 2016.

During a second-quarter conference call, Roger Jenkins, president and chief executive officer, said Murphy and joint-venture partner Athabasca Oil Corporation expect that there will be two wells drilled and four wells completed in the Murphy-operated Kaybob Duvernay.

"We're just getting started on our operatorship with the Kaybob asset and are moving forward with development plans for the rest of the year and planning 2017. At this time, we're completing a four-well pad in the condensate area of the play and anticipate flowing these wells very late this year or early next," he said.

"We're also picking up a rig and plan to drill a four-well pad in the light oil area in quarter four and hope to have two wells drilled by year-end. Our plan in the Kaybob area is to increase lateral lengths over time to 9,000 feet and pump fracs with 2,000 pounds per foot of sand, which we feel will lead to higher rates in the area of the play and offer upside for Murphy and our partner." ■

CONTACTS

INDUSTRY ASSOCIATIONS

Alberta Land Surveyors' Association www.alsa.ab.ca
Canadian Association of Geophysical Contractors www.cagc.ca
Canadian Association of Oilwell Drilling Contractors www.caodc.ca
Canadian Association of Petroleum Producers www.capp.ca
Canadian Energy Pipeline Association www.cepa.com
Canadian Natural Gas www.canadiannaturalgas.ca
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